6-2019

FOOD INSECURITY AMONG SOUTH ASIAN IMMIGRANT COMMUNITIES IN THE INLAND EMPIRE OF SOUTHERN CALIFORNIA

Farhan Danish
California State University - San Bernardino

FOOD INSECURITY AMONG SOUTH ASIAN IMMIGRANT COMMUNITIES IN THE INLAND EMPIRE OF SOUTHERN CALIFORNIA

A Thesis

Presented to the

Faculty of

California State University,

San Bernardino

In Partial Fulfillment

of the Requirements for the Degree

Master in Public Health

---

by

Farhan Danish

June 2019

FOOD INSECURITY AMONG SOUTH ASIAN IMMIGRANT COMMUNITIES IN THE INLAND EMPIRE OF SOUTHERN CALIFORNIA

A Thesis

Presented to the

Faculty of

California State University,

San Bernardino

---

by

Farhan Danish

June 2019

Approved by:

Monideepa B. Becerra, Committee Chair, Health Science and Human Ecology

Salome Mshigeni, Committee Member, Health Science and Human Ecology

Sen Padilla, Committee Member, Health Science and Human Ecology

ABSTRACT

Background: Food insecurity amongst South Asian Americans is a major public health issue. The South Asian American (SAA) community is the third largest Asian community in the United States. Despite this fact, very few specific studies have been conducted to investigate the food needs and barriers that exist within the SAA community so as to successfully help them improve dietary habits.

Methods: This study utilized a mixed methods convergent parallel design, where both qualitative and quantitative methods were conducted and analyzed separately and compared and contrasted at the end.

Results: The results of this study demonstrate that ethnic grocery stores were limited and scattered for the population to access them. Also, some ingredients used by the population were not available in general grocery stores and the pricing was considerably higher. Results of the focus group show that what was considered healthy in their home country would be expensive in the United States and thus switching to cheaper options in the new country was norm. Furthermore, cultural/religious appropriate food items were limited due to cost and often impacted participants' dietary behavior. In addition to expense, the availability of ethnic-specific food ingredients was limited and/or would require significant travel to obtain them, and thus further contributed to change their dietary habits.

Conclusion: The results of the study highlight the need for more interventions focusing on the food habits of the SAA population, in terms of availability of ingredients and accessibility to the ethnic grocery stores in the Inland Empire of Southern California.

ACKNOWLEDGEMENTS

First and foremost, I would like to thank God and my parents for their continuous love, support and guidance. Most especially my parents who have provided me with the opportunity of studying in the U.S. To the rest of my family, my brother and my sister for their continuous belief in me. I would not have been able to do this without the humble support of Dr. Monideepa Becerra for advising and guiding me throughout my entire research process. To my committee members, Dr. Salome Mshigeni and Dr. Sen Luu for their patience and support. To my colleagues here at California State University, for their time and consideration in helping me learn and develop as a health care professional.

DEDICATION

I dedicate this research to all international students who like myself, find it hard in coping when moving to a new country. To all immigrants who have trouble navigating resources in a new environment and to all the people who struggle to explain their culture and needs.

TABLE OF CONTENTS

LIST OF FIGURES

CHAPTER ONE

INTRODUCTION

Problem Statement

Over 4.3 million South Asians currently live in the United States (Bharmal & Chaudhry, 2012). These include individuals with ancestry from Bangladesh, Bhutan, India, Nepal, Pakistan, Maldives and Sri Lanka (Bharmal & Chaudhry, 2012). Since 2000, the South Asian American community as a whole grew 81% over a ten-year period. California is one of the states that holds the largest South Asian American population in the country and their demographic importance is increasing rapidly in the United States ("Resources and Fact Sheets | SAALT," n.d.). The unprecedented rise in the United States immigration population has not been accompanied by an increase in monitoring health and mortality patterns (Bharmal & Chaudhry, 2012). Despite the fact that the South Asian American population is the third largest Asian community in the United States, limited studies exists that focus on their health, food, and well-being.

A study done on the leading causes of mortality amongst Asian immigrants revealed that Ischemic heart disease was the leading cause of death for Asian Indians, followed by cancer, stroke and diabetes for all further sub-groups (Hastings et al., 2015). The risk factors for heart disease can directly be linked to food patterns and the lack of resources amongst the South Asian American communities in harboring healthy food options. Moreover, a report from the Centers for Disease Control and Prevention (CDC) stated a 14% prevalence

rate of diabetes among South Asian Americans, more than double the rate for Whites (Patel, Phillips-Caesar, & Boutin-Foster, 2012). Among all Asian groups in the United States, South Asians have the highest rates of obesity: 25% among men and 37% among women (Patel, Phillips-Caesar, & Boutin-Foster, 2012). Given the burden of health disparities in this population, assessment of their social determinants is necessary.

Information is also lacking on structural factors such as ethnic discrimination, social segregation, poverty, lack of access to healthy foods, lack of access to health insurance, policies restricting immigrants' access to social care and benefits. Also, this growing population has its' needs often overlooked due to their language and cultural barriers. Furthermore, the aggregation of South Asian data as part of Asian-American terminology has further limited research in the population (Singh & Siahpush, 2002).

One major social factor that has been shown to impact health outcomes is that of food insecurity. Food insecurity is an emerging problem in the nation with over 15 million (11.8%) of American households being food insecure at sometime during 2017 ("USDA ERS - Key Statistics & Graphics," n.d.). The United States Department of Agriculture defines food insecurity as "a household level economic and social condition of limited or uncertain access to adequate food. It could result from lack of financial or other important resources and also includes inadequate or limited access to nutritionally vital food" ("USDA ERS - Definitions of Food Security," n.d.). Food insecurity as discussed above is an important

health problem and an under-recognized social determinant of health usually associated with inadequate intake of vital nutrients. Populations that experience food insecurity often consume a nutrient poor diet which may contribute to the development of childhood obesity, heart disease, hypertension, diabetes and aggravate diseases' effects (Barrett, 2010).

A central component of South Asian culture revolves around food and the concept of traditional family recipes with the blend of ingredients, oils, and spices that are part of the traditional South Asian diet and this diet is of central importance to their identity (Tang, 2012). The fundamental role that food plays in South Asian culture affects attitudes toward dietary modification. With acculturation and economic burden, South Asian American communities resort to alternative unhealthy food options which in turn pose as risk factors for chronic diseases (Gadgil, Anderson, Kandula, & Kanaya, 2015). As such, lack of adequate and affordable access to ethnic specific food can further lead to higher levels of food insecurity in the population.

Purpose of the Study

The purpose of this study is to examine food insecurity among South Asian immigrant population in Southern California - Inland Empire. The South Asian American community is the third largest Asian community in the United States ("Resources and Fact Sheets | SAALT," n.d.). Despite this fact, very few specific studies have been conducted to investigate the food needs and cultural barriers that exist within the South Asian American community so as to

successfully help them improve dietary habits and physical activity levels. South Asian American communities are disproportionately affected by several cardiovascular diseases and clinical risk factors (Khan, 2018a). These factors include a high incidence of obesity, high blood pressure, high cholesterol, and diabetes. Moreover, these risk factors can directly be linked to food patterns and the lack of resources amongst the South Asian American communities (Gadgil et al., 2015). The evaluation of emerging needs amongst this population in terms of availability of food options and access to ethnic grocery stores in Southern California will aid in developing and providing appropriate interventions. Thus, the research questions for this study are: What is the availability of ethnic-specific food stores for South Asians? Are there any differences in cost of ethnic-specific food by store type? Is the lack of ethnic-specific food alternate cooking method among South Asians?

Significance of the Study

The findings from the study will help determine the presence of food deserts in Southern California – Inland Empire for the South Asian American community. Also, the goal of this study is to evaluate the cost-efficacy of South Asian ethnic-specific food items and whether that may contribute to food insecurity among this specific population. The study will also help future interventions focus on educating the population on already available resources in terms of modifying diets. The following program learning outcomes are to be met by the proposed thesis:

- Select quantitative and qualitative data collection methods appropriate for a given public health context.
- Applying awareness of cultural values and practices to the design or implementation of public health policies or programs.
- Proposing strategies to identify stakeholders and build coalitions and partnerships for influencing public health.
- Describing the importance of cultural competence in communicating public health content.
- Evaluating interdisciplinary health behavior theories to promote health equity among vulnerable populations.

The proposed program learning outcomes will be met by the following tasks:

- Researching options on the availability of ethnic grocery stores.
- Assessing community needs in terms of availability and accessibility.
- Engaging community members to better understand cultural barriers and habits.
- Identifying habits that could develop risk factors for chronic diseases.
- Modifying and providing alternative food options for the vulnerable population.

CHAPTER TWO

LITERATURE REVIEW

The United States' immigrant population has been considerably growing over the past three decades with approximately over 44 million immigrants living in the country, representing almost 13.5% of the overall population (Passel, 2011). Over 17.3 million of the immigrant population represents the Asian American community with the majority being from China, India and the Philippines (Hirschman, 2014). In 2010 nearly three-fourths of all Asian groups lived in ten states with California leading the numbers, having over 5.6 million people from the immigrant groups (Hirschman, 2014). These Asian American groups comprise many further subgroups in terms of nationality, language, culture, food and beliefs.

Over 4.3 million South Asians currently live in the United States. These include individuals with ancestry from Bangladesh, Bhutan, India, Nepal, Pakistan, Maldives and Sri Lanka (Bharmal & Chaudhry, 2012). Since 2000, the South Asian American community as a whole grew 81% over a ten year period. California is one of the states that holds the largest South Asian American population in the country and their demographic importance is increasing rapidly in the United States ("Resources and Fact Sheets | SAALT," n.d.). The unprecedented rise in the United States' immigration population has not been accompanied by an increase in monitoring health and mortality patterns (Khan, 2018b). Despite the fact that the South Asian community is the third largest Asian

community in the United States, very few studies exists which focus on their health, food and well-being.

The impact of immigration status on health and behaviors of these groups need to be comprehensively studied. Information is also lacking on structural factors such as ethnic discrimination, social segregation, poverty, lack of access to healthy foods, lack of access to health insurance, policies restricting immigrants' access to social care and benefits. Also, this growing population has its' needs often overlooked due to their language and cultural barriers. Furthermore, the aggregation of South Asian data as part of Asian-American terminology has further limited research in the population (Singh & Siahpush, 2002). Moreover, the "Model Minority" myth hides the economic realities of many South Asian Americans (Daga & Raval, 2018). The "Model Minority" concept characterizes Asian American groups not limited to the South Asian Americans as groups that outperform other ethnic groups in academic, social and professional realms. This concept rallies the group against seeking counseling and psychological services (Daga & Raval, 2018).

Indian Americans represent the largest South Asian group demonstrating high rates of educational attainment with estimated 70% having college degrees, which is considerably higher than both the United States' and the Asian American national averages of 28% and 49%, respectively (Musu-Gillette, 2017). According to the United States Census Bureau, the median household income of the Indian American sub-group is estimated to be at $101,000, almost double

than that of the United States' median household income of $53,657 (Bureau, n.d.). Despite relative group success, many live in poverty and all groups have reported experiencing racism and discrimination (Daga & Raval, 2018). Furthermore, it is not clear as to what results in the health status of these individuals after being exposed to new environments and assimilation into the American culture.

Nevertheless, the existing literature highlights several health disparities. It has been understood that people from certain ethnic minority communities have a much greater affinity towards the development of diabetes than those from other regions (Hastings et al., 2015) . A study done on the leading causes of mortality amongst Asian immigrants revealed that Ischemic heart disease was the leading cause of death for Asian Indians, followed by cancer, stroke and diabetes for all further sub-groups (Hastings et al., 2015). The risk factors for heart disease can directly be linked to food patterns and the lack of resources amongst the South Asian American communities in harboring healthy food options. Moreover, a report for the Centers for Disease Control and Prevention (CDC) stated a 14% prevalence rate of diabetes among South Asian Americans, more than double the rate for Whites (Patel et al., 2012). Among all Asian groups in the United States, South Asians have the highest rates of obesity: 25% among men and 37% among women (Patel, Phillips-Caesar, & Boutin-Foster, 2012). Given the burden of health disparities in this population, assessment of their social determinants is necessary.

The reason for the high prevalence is not completely clear, however, a variety of socio-economic factors and health behaviors can be linked to the groups such as increased sedentary lifestyles, increased fat intake, reduced physical activities, low income and poor education (*Diabetes in the South Asian community*, n.d.). In a study conducted on South Asian immigrants, Gadgil et al. noted the relationship of dietary patterns and metabolic risk factors leading up to several cardiovascular diseases. It was also noted that BMI, physical exercise and social determinants are interlinked with diet and the development of diabetes and cardiovascular disease for the South Asian American immigrant group (Gadgil et al., 2015).

One major social factor that has been shown to impact health outcomes is that of food insecurity. Food insecurity is an emerging problem in the nation with over 15 million (11.8%) of American households being food insecure at sometime during 2017 (“USDA ERS - Key Statistics & Graphics,” n.d.). The United States Department of Agriculture defines food insecurity as “a household level economic and social condition of limited or uncertain access to adequate food. It could result from lack of financial or other important resources and also includes inadequate or limited access to nutritionally vital food” (“USDA ERS - Definitions of Food Security,” n.d.). Food insecurity as discussed above is an important health problem and an under-recognized social determinant of health usually associated with inadequate intake of vital nutrients. Populations that experience food insecurity often consume a nutrient poor diet which may contribute to the

development of childhood obesity, heart disease, hypertension, diabetes and aggravate diseases' effects (Barrett, 2010).

Food insecurity is an important health problem and an under-recognized social determinant of health usually associated with inadequate intake of vital nutrients. In food insecure households, the need for food competes with the need for other basic necessities such as housing, healthcare, utilities and transportation (Walsemann, Ro, & Gee, 2017). Populations that experience food insecurity often consume a nutrient poor diet which may contribute to the development of childhood obesity, heart disease, hypertension, diabetes and other such chronic diseases. A central component of South Asian culture revolves around food and the concept of traditional family recipes with the blend of ingredients, oils, and spices that are part of the traditional South Asian diet and this diet is of central importance to their identity (Tang, 2012).

The fundamental role that food plays in South Asian culture affects attitudes toward dietary modification. With acculturation and economic burden, South Asian American communities resort to alternative unhealthy food options which in turn pose as risk factors for chronic diseases (Gadgil et al., 2015). As such, lack of adequate and affordable access to ethnic specific food can further lead to higher levels of food insecurity in the population.

CHAPTER THREE

METHODS

Study Design

This study is a mixed methods convergent parallel design, where both qualitative and quantitative methods are conducted and analyzed separately and compared and contrasted at the end. This study was divided in two parts: quantitative field data collection, which was further divided into five distinct phases as part of a larger study, and part two consisted of both qualitative and quantitative data collection from participants. This last part was further divided as data collection through survey instruments and focus group, as noted later in appropriate sections.

Data Collection, Measures and Analysis

The first part of the study consisted of field data collection, which was divided in to five phases (see Appendix A). Phase 1 of the study focused on identifying the presence of ethnic specific grocery stores in the Inland Empire. Six ethnic specific grocery stores were identified in this phase of the study that catered to the needs of the South Asian American population.

Phase 2 of the study involved the identification of food items commonly consumed by the population along with common ingredients used in the preparation of the food items. In this phase, ten common food items, namely, Dosa, Parantha, Pulao, Daal, Sabzi, Curry, Momo, Chaat, Chai and Lassi were

identified. Ethnic specific ingredients used in making these food items, namely, garam masala, ginger paste, garlic paste, lentils, cumin powder, cinnamon sticks, cardamom, coriander powder, cloves, tea powder, bay leaves, basmati rice and fenugreek seeds were noted.

Phase 3 of the study involved in accumulating prices of the various ingredients used to prepare the common food items at these identified ethnic grocery stores. This data was collected with due consultation of the store owners by visiting each of the selected ethnic grocery stores. The average price ranges were determined for all the common ingredients at these selected ethnic grocery stores.

Phase 4 and 5 of the study primarily focused on the availability of the common ingredients at selected general grocery stores, namely, Food 4 Less, Walmart and Whole Foods Market. Along with the availability of the ingredients, price ranges were collected to determine average costs for the said ingredients. This data was collected by visiting these general grocery stores around the Inland Empire.

The second part of the study consisted of both qualitative and quantitative data collection from South Asian participants living in the Inland Empire; though the content relevant to this project was focused on the qualitative only. For the qualitative section, focus groups was conducted until theoretical saturation to gain an understanding of whether South Asians reported change in their cooking or eating behavior patterns due to accessibility of ethnic-specific food items.

Next, a 16-item survey instrument, with both open and close-ended questions were given out to assess their food security status. Participants were selected based on their identification as South Asians and residing in the Inland Empire.

Such qualitative data was collected via face-face interviews and their responses were audio recorded. Demographic information was collected before beginning the interview through the survey instrument (see Appendix B). The researcher then conducted interviews as outlined in the interview guide provided (see Appendix C) to explore South Asians' experience of food insecurity in relation to them residing in the Inland Empire. The survey and the guide were developed in accordance with the survey tool guide provided by The United States Department of Agriculture ("USDA ERS - Survey Tools," 2019). Interview questions included if whether or not they cooked their ethnic specific food items and whether they had changed the way they cooked due to lack of access to ethnic specific ingredients and costs.

The interviews were transcribed onto a Word document and were then coded where common words and phrases were first identified, following by categorical analysis of how such common words/phrases were connected to give rise to emergent themes. Thematic analysis was used to identify major themes in relation to the participant's experience of food insecurity. The major themes included participant's changing of cooking styles, using what was available, higher cost of ingredients and lack of access to ethnic grocery stores. As a result of the data analysis, this study sought to explore whether being food insecure

was indeed an issue amongst South Asians living in the Inland Empire of Southern California.

Ethics

All participants were provided with an informed consent, which they read and signed (see Appendix D) before beginning the survey and the interviews. The interviews were conducted as a focus group and lasted for about an hour. Identifying information (e.g., name, address, phone number) were not asked of and the participants were informed that they would remain anonymous. Rather, participants were assigned an identification number to ensure that their answers were not associated with any other participant. Audio recordings were collected via a digital device and were saved on a laptop using passcode encryption.

CHAPTER FOUR

RESULTS

In this chapter, the availability of ethnic grocery stores and ingredients in making common food items for the South Asian population in the Inland Empire will be presented. Furthermore, findings in relation to the experiences of food insecurity based on the participants' interviews will also be provided.

Availability of ethnic grocery stores

Through the use of the mapping software, Google Maps, six ethnic-specific grocery stores were identified which cater to the South Asian population in the Inland Empire. These identified grocery stores had common ingredients used by all the ethnicities of South Asia in the preparation of their food items. Restaurants and eateries were not included in this search and emphasis was given to only grocery stores. Through the mapping software, it was determined that there were limited numbers of ethnic-grocery stores for the population. The grocery stores were spread at a random and the distance from one to another was found to be at an average of 10 miles. Figure 1 represents the presence of the ethnic-grocery stores in various cities within the Inland Empire.

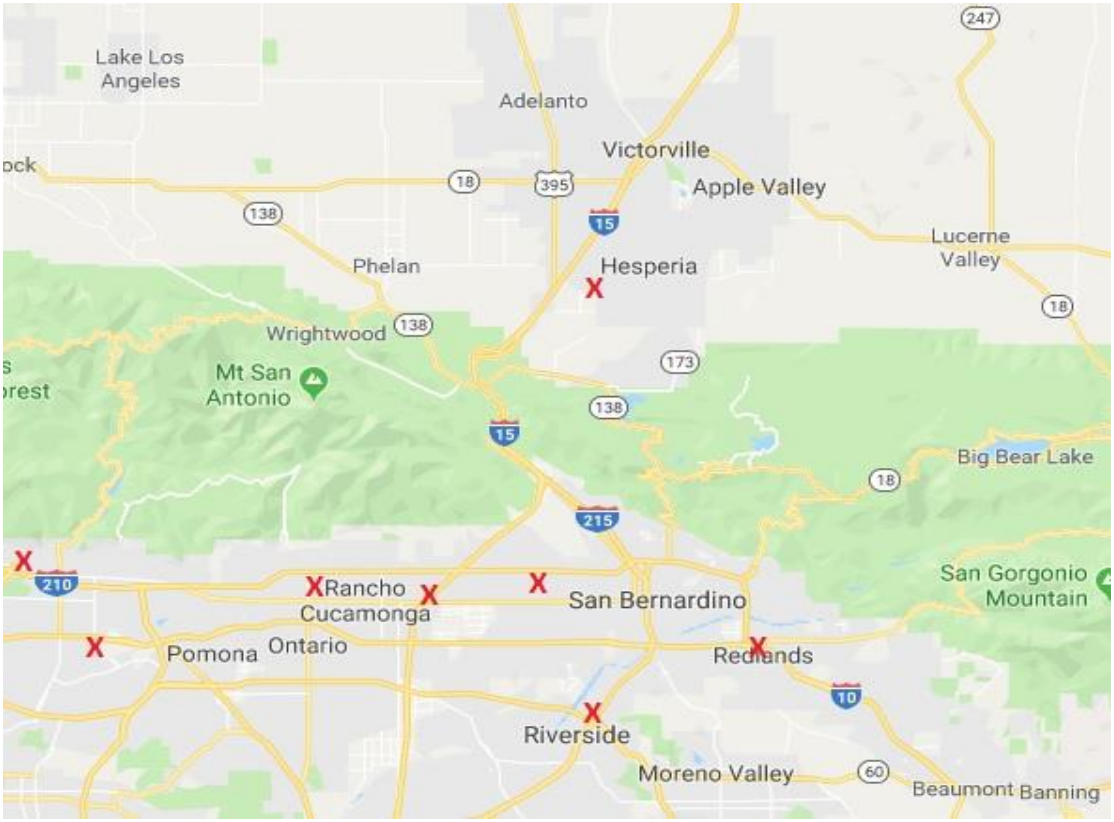


Figure 1. Ethnic grocery stores across various cities of the Inland Empire.

Differences in cost of ingredients

To address the research question: Are there differences in cost of ethnic-specific food by store type; an in-depth analysis of the collected data was done to estimate the price ranges of the common ingredients. Pricings of the ingredients from the selected ethnic-grocery stores were compared to those at the general grocery stores. This was done for randomly selected common food items such as Daal, Sabzi, Pulao, Curry and Dosa.

The data collected was used to compare prices of common ingredients by using the average cost of these ingredients at the selected ethnic grocery stores

and comparing them with the same available at general grocery stores. For each food item, the data was visualized using graphs and comparisons were made.

The common ingredients used to prepare the food item, Daal, were orange lentils, ghee, garam masala, ginger paste, garlic paste and cumin powder. An important ingredient, such as ghee, was not available at Walmart and Food4Less and the average price for the same was high at the ethnic grocery stores. Figure 2 depicts the price range for the ingredients of the food item, Daal, at various grocery stores.

	Orange Lentils	Ghee	Garam Masala	Ginger Paste	Garlic Paste	Cumin Powder	
Average cost at Ethnic grocery stores	$5.15	$8.42	$6.99	$5.65	$5.65	$4.65	
Food4Less	$2.99			$3.79	$3.79	$3.69	
Walmart	$3.42			$3.98	$3.44	$2.98	
Whole Foods Market	$2.49	$7.19	$5.49	$2.29	$3.49	$1.99	

Figure 2. Price range of common ingredients for daal.

The common ingredients used to prepare the food item, Sabzi, are garlic paste, ginger paste, cumin, fenugreek seeds and fennel seeds. Certain ingredients, such as fenugreek and fennel seeds were not available at certain general grocery stores and the average prices for the same were higher at the general grocery store where it was available. Figure 3 depicts the price range for the ingredients of the food item, Sabzi, at various grocery stores.

	Ginger Paste	Garlic Paste	Cumin	Fenugreek Seeds	Fennel Seeds
Average cost at Ethnic grocery stores	$4.99	$4.99	$4.89	$1.62	$2.24
Food4Less	$3.79	$3.79	$3.69		
Walmart	$3.98	$3.44	$2.98		$3.97
Whole Foods Market	$2.29	$3.49	$1.99	$7.99	$2.29

Figure 3. Price range of common ingredients for sabzi.

The common ingredients used to prepare the food item, Dosa, are rice and black gram. The ingredient, black gram, is not available at any of the general grocery stores and is only available at the ethnic grocery stores. Figure 4 depicts the price range for the ingredients of the food item, Dosa, at various grocery stores.

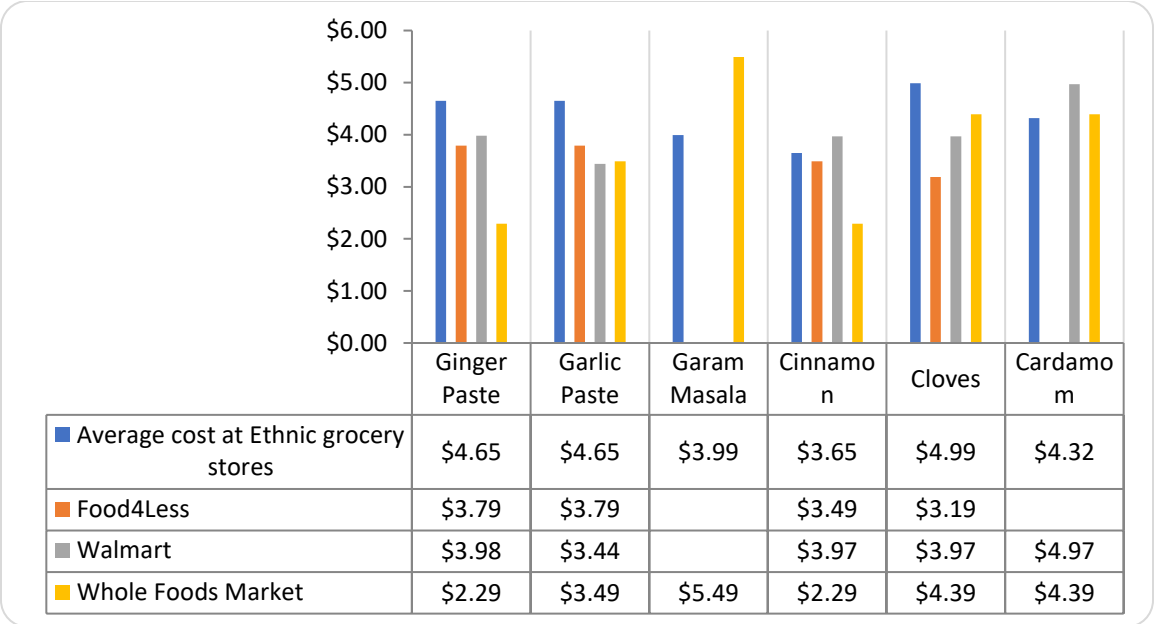
Figure 4. Price range of common ingredients for dosa.

The common ingredients used to prepare the food item, Pulao, are basmati rice, bay leaves, cinnamon sticks and dried onion. The ingredient, basmati rice is relatively more expensive at general grocery stores than in the ethnic grocery stores. The ingredient, dried onion, is only available at the ethnic grocery stores. Figure 5 depicts the price range for the ingredients of the food item, Pulao, at various grocery stores.

	Basmati Rice	Bay Leaf	Cinnamon sticks	Dried Onion
Average cost at Ethnic grocery stores	$12.32	$1.92	$4.49	$3.99
Food4Less	$24.99	$2.29	$3.49	
Walmart	$21.85	$3.00	$3.97	
Whole Foods Market	$14.95		$2.29	

Figure 5. Price range of common ingredients for pulao.

The common ingredients used to prepare the food item, Curry, are ginger paste, garlic paste, cardamom, cinnamon, garam masala and cloves. The specialty ingredient, garam masala is not available at certain general grocery stores and is relatively more expensive in the general grocery store that it is available in when compared to that in the ethnic grocery stores. Figure 6 depicts the price range for the ingredients of the food item, Curry, at various grocery stores.



	Ginger Paste	Garlic Paste	Garam Masala	Cinnamon	Cloves	Cardamom
Average cost at Ethnic grocery stores	$4.65	$4.65	$3.99	$3.65	$4.99	$4.32
Food4Less	$3.79	$3.79		$3.49	$3.19	
Walmart	$3.98	$3.44		$3.97	$3.97	$4.97
Whole Foods Market	$2.29	$3.49	$5.49	$2.29	$4.39	$4.39

Figure 6. Price range of common ingredients for curry.

Experiences of food insecurity

In order to assess whether South Asian participants were changing their cooking or eating behavior due to availability of ethnic-specific food items, focus group results were thematically analyzed. Participants noted what they considered healthy was substantially different in the United States than in their home country, with cost being the primary attributable factor. Particularly, a participant highlighted that what is considered healthy in their home country would be expensive in the United States and thus switching to cheaper options in the new country was norm. Furthermore, it was not just limited to what was considered healthy, but even cultural/religious appropriate food items were limited due to cost and often impacted participants' dietary behavior.

"Definitely, because there's a difference in the healthy food you cook in India as to the stuff you cook here. Healthy stuff like lettuce [are] nine cents. But in India if it's a healthy food maybe you would make Dosa or Daliya, which is really expensive [here]. Dalia 1 lb is like 5.99 in Indian stores but lettuce I can get for 99 cents apiece. So, I switched to a healthy food which is non-Indian to save money."

"I used to eat in India parathas for breakfast. Here, what I get an Indian store are frozen parathas and are not much healthy. So, I have to eat sandwiches."

"One of the problems is that, because like I used to eat halal meat OK…halal meat is super expensive."

Furthermore, participants noted that ethnic-specific food items were more expensive, especially if they were vegetarian food items.

"*Well buying vegetarian food here is expensive because I guess buying non-vegetarian food at a restaurant or even buying raw meat is cheaper than buying vegetables and cooking them at home."*

"What I usually like to have, for example the fish and vegetables I like are really expensive to get."

"… certain type of meats is quite cheap over here compared to the vegetables or certain group of meat or fishes."

In addition to expense, participants also noted that the availability of ethnic-specific food ingredients were limited and/or would require significant travel to obtain them, and thus further contributed to change in their dietary habits.

"Sometimes that we can't find the proper ingredients that we usually used to cook in our country, but we'll have to be accustomed to the ingredients we get here."

"Yeah I do think it is difficult, because I see people that I know of go far for ethnic food items"

"I don't think South Asian people living in Inland Empire are able to find their ethnic group food."

“And most times when people go far like L.A, they buy some stuffs which are not much available around here.”

Summary

As a result, this chapter presented the low availability of ethnic grocery stores in the Inland Empire of Southern California. Moreover, the chapter highlighted the cost differences of ethnic specific ingredients for the population and how due to lack of availability and higher costs, the population unwillingly had to resort changing their eating behaviors and cooking patterns. As such, the opinions and experiences obtained from the interviews were utilized to explain the findings that were presented.

CHAPTER 5

DISCUSSION

This study focused on examining food insecurity among the South Asian immigrant population living in the Inland Empire of Southern California. Food insecurity for this population was viewed under the lens of availability of ethnic-grocery stores, access to these ethnic-grocery stores as well as the cost of ingredients. The quantitative portion of the study linked the lack of availability of ethnic-grocery stores in the Inland Empire and the high cost of ingredients. All the participants in the study were born in a South Asian country and were currently residing in the Inland Empire of Southern California. The qualitative results of this study confirm the experiences of food insecurity faced by this population. Furthermore, the study results identify several factors which have led the population in being food insecure. The use of mapping software revealed disproportionate distribution of ethnic specific grocery stores available to this population. Throughout the cities of the Inland Empire, very few ethnic grocery stores exist for this population to access. For example, the communities living in the high desert cities, including Hesperia, Apple Valley and Victorville were served by just one ethnic grocery store. The closest second option to the people residing in the high desert would be 30 miles away in the city of Fontana. This

particular problem of access and availability was also reflected with the focus group interviews, where many participants expressed their concerns on significant travel in obtaining the ingredients required by them for cooking. For instance, (Patel et al., 2012) cited the economic burden of South Asian immigrants in coping with behavior change. Significant travel in obtaining ingredients, adds to the economic woes of the population, thereby rendering them to opt for energy dense and unhealthy food.

The study results also expand on the costing of common ingredients utilized in the making of common food items for this population. Significant variations in cost of ingredients was noted across the various ethnic grocery stores. For example, for the food item *"Curry"*, common ingredient such as Garam Masala was not available in general grocery stores. The average price for the same was high at the ethnic-grocery stores. Likewise, Ginger-Garlic paste was available at all the grocery stores but was significantly higher priced at the ethnic grocery stores. Moreover, further common ingredients like Cardamom and Cloves were cheaper at the ethnic grocery stores than at the general grocery stores. The study results positively prove variation in prices for the various ingredients across different store types. The variation in prices was also noted by the participants and it was communicated that this would often be the cause for having to visit more than one grocery store in order to obtain various ingredients to prepare their food.

Strengths and Limitations

This is the first population-based study that focuses on food insecurity, an important social determinant of health for the South Asian immigrants in the U.S. Although, previous studies have examined the diet of South Asians, few have focused on the link between food security and the health of this population and even fewer have tried to quantify the burden of food insecurity at an ethnic-minority level.

The study findings are consistent with the research questions, linking the availability of ethnic-grocery stores in terms of access, high cost of ingredients in terms of affordability along with economical burden which has rendered the population food insecure.

The findings in this study are subject to the following limitations. First, the results are based on findings pertaining only to the Inland Empire. Demographic data pertaining to South Asian immigrants in the Inland Empire was missing, which could have been a useful tool in determining if whether the available grocery stores would suffice the population.

Second, participating South Asians were immigrants in the U.S. for less than 5 years. The study fails to examine the experiences of South Asian immigrants who have resided in the Inland Empire for a period of 5 years or longer.

Third, the study fails to acknowledge the cost of importing ingredients which may have subjected the ingredients to vary in price. This could be a

contributing factor for ethnic-grocery stores to increase the prices of ingredients for profitability.

Recommendations for Research and Practice

As a result of the study, it appears South Asian Immigrants residing in the Inland Empire of Southern California are bound with the challenges of having few ethnic-grocery stores and the high cost of ingredients. With this knowledge, there is a need for increasing the distribution of these ethnic-grocery stores across the Inland Empire. Moreover, a social policy implication would be the inclusion of common food ingredients in general grocery stores such as Walmart, Food4Less and Whole Foods Market. This inclusion would help ethnic populations considerably by reducing travel as well as cost. Furthermore, the government could incentivize local farmers to grow the ingredients locally, thereby bringing down cost of ingredients.

Data such as this can be used to lobby for creating awareness as well as assistance programs for vulnerable ethnic-populations. Finally, the study can be used as a front for more comprehensive assessments in order to assess ethnic-minority needs and decrease the impact of food insecurity.

Conclusion

The study examined the role of availability, accessibility and affordability in determining food insecurity for the South Asian immigrant population residing in the Inland Empire of Southern California. The main factors that were addressed were the deranged distribution of ethnic-grocery stores as well as the high cost of ingredients for the population. The majority of participants in the study appeared to experience food insecurity and highlighted the issue of significant travel which added to their economical woes. As such, this study serves as a foundation for future studies to focus on the social determinants of health for ethnic minorities. In discovering what factors can contribute towards food insecurity, this study can guide future research and policies in implementing better accessibility to ethnic-grocery stores, better availability and lowering the cost of ingredients.

APPENDIX A

FIELD DATA COLLECTION

Phase 1:

Table 1			
Store name	Location (address with zip code)	Specific ethnicity (Indian, Bangladeshi, mixed, etc.)	Hours of operation
1.			
2.			
3.			
4.			
5.			
6.			

Phase 2:

Table 2			
Food item (use culture specific words)	Commonly eaten during (breakfast, lunch, dinner, snack, etc.)	Specific ethnicity (Indian, Bangladeshi, mixed, etc.)	Common ingredients used (not condiments unless ethnicity specific)
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Phase 3:

Table 3			
Food item (use culture specific words) and number from Table 2	Common ingredients used (not condiments unless ethnicity specific)	For each ingredient list the cost at each store from Table 1 (please use store # to identify)	Average and range of cost of cooking the food item

Phase 4:

Table 4		
Price range	Name of grocery store	Justification for price range selection
Low tier price		
Middle tier price		
High tier price		

Phase 5:

Table 5			
Food item (use culture specific words) and number from Table 2	Common ingredients used (not condiments unless ethnicity specific)	For each ingredient list the cost at each store from Table 4 (please use store # to identify)	Average and range of cost of cooking the food item

APPENDIX B

SURVEY INSTRUMENT

1. The food that (I/we) bought just didn’t last, and (I/we) didn’t have money to get more.” Was that often, sometimes, or never true for (you/your household) in the last 12 months? *Please select one.*

   [ ] Often true
   [ ] Sometimes true
   [ ] Never true

2. “(I/we) couldn’t afford to eat balanced meals.” Was that often, sometimes, or never true for (you/your household) in the last 12 months? *Please select one.*

   [ ] Often true
   [ ] Sometimes true
   [ ] Never true

3. In the last 12 months, did (you/you or other adults in your household) ever cut the size of your meals or skip meals because there wasn't enough money for food? *Please select one.*

   [ ] No (to move to question 4).
   [ ] Yes

   3a. How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months? *Please select one.*

   [ ] Almost every month
   [ ] Some months but not every month
   [ ] Only 1 or 2 months

4. In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food? *Please select one.*

   [ ] No
   [ ] Yes

5. In the last 12 months, were you every hungry but didn't eat because there wasn't enough money for food? *Please select one.*

   [ ] No
   [ ] Yes

6. Is it difficult to find culture-specific food items to buy? *Please select one.*

[ ] No
[ ] Yes
[ ] I don't buy any culture-specific food items (move to question 7).

6a. Do you find buying culture-specific food items to be more expensive? *Please select one.*

[ ] No
[ ] Yes

6b. When buying culture-specific food items, where do you commonly shop? *Select all that apply.*

[ ] South Asian markets (such as Indian stores, Bangladeshi stores, etc.)
[ ] Western grocery stores (Stater Bros., Ralph, Trader Joes, etc.)
[ ] Online
[ ] Other

7. In general, what difficulties do you face when buying healthy and affordable food?

8. Have you ever participated in a food assistance program (such as food stamp, WIC, etc.)?

[ ] No, I qualified but did not participate in any food assistance programs (move to question 8c).

[ ] No, I did not quality qualified and did not participate in any food assistance programs (move to question 9).

[ ] No, I do not know about any food assistance programs (move to question 9).
[ ] Yes

8a. Which type(s) of food assistance program have you participated in?

8b. What problems have you faced when participating (including registering for or finding information about) such food assistance programs?

8c. Why didn't you choose to participate in any food assistance program?

9. What benefits do you think are to participating in food assistance programs?

10. What do you think are the problems to participating in food assistance programs?

11. Where do you usually shop for food items?

[ ] South Asian markets (such as Indian stores, Bangladeshi stores, etc.)
[ ] Western grocery stores (Stater Bros., Ralph, Trader Joes, etc.)
[ ] Online
[ ] Other

12. What is your age (years)?
[ ] 18-24
[ ] 25-30
[ ] 31-39
[ ] 40-49
[ ] 50-59
[ ] 60 or more

13. What is your sex?
[ ] Male
[ ] Female

14. How long have you lived in the Untied States?
[ ] Less than 1 year
[ ] 1-5 years
[ ] 5-9 years

[ ] 10 or more years
15. What is your **yearly** household income level (in US dollars)? _____

16. What is your highest education level?
[ ] Less than high school
[ ] College graduate (Associate or Bachelor's degree)
[ ] Masters or higher

APPENDIX C

INTERVIEW GUIDE

Focus group central questions:

1) Do you usually cook your ethnicity specific food items?
    a. Probe if no: What type of food do you usually eat? Do you find healthy food to be expensive? *Skip question 2 if all say no to question 1, otherwise move to question 2.*

2) it been difficult finding your ethnic group-specific food items?
    a. Probe: Where do you usually shop for ethnic-specific food items? Do you feel they are expensive at ethnic stores compared to Western stores?

3) Have you changed how you cook because of lack of access to healthy food items, ethnic specific food items, or cost?
    a. Probe: Do you feel most South Asians living here in the Inland Empire find it easy to find their ethnic group food, why or why not?

APPENDIX D

CONSENT FORM

CALIFORNIA STATE UNIVERSITY
SAN BERNARDINO

Department of Health Science and Human Ecology

Consent Form

Barriers to Food Security among South Asian

You are invited to participate in a study that would like to create a survey that is appropriate for South Asian residents in the United States. This study has been approved by the Institutional Review Board of California State University, San Bernardino. The goal of this pilot study is to understand what problems South Asian communities face in order to get culturally-appropriate and/or cost-effective food items. This study is being conducted by Monideepa Bhattacharya Becerra, DrPH, MPH, CHES; Salome Mshigeni, PhD, MPH, MPA, and Sen Padilla, MPH (Faculty Researchers) from the Department of Health Science and Human Ecology at California State University San Bernardino along with students Suborna Bhattacharjee, Valentina Chawdury, and Farhan Danish (Master of Public Health Students).

Purpose:
The study will try to understand what problems South Asian communities face when finding culturally appropriate and/or cost-effective food items.

Procedure:
You will fill out a brief questionnaire of 16 questions in English. It should take you no more than 30 minutes to fill out the questions. Next, you will discuss, in groups, about your South Asian specific food preparation practices and potential barriers you may face to obtain healthy food. This should take no more than 1 hour.

Risks and Benefits:
Your participation will involve minimal risk, however, you may feel uncomfortable providing some information, such as income, and education. Participation is completely voluntary and you may refuse participation at any time or refuse to answer any individual question that causes discomfort.

Confidentiality:
All records will be kept confidential to the extent allowed by law. All data will be collected anonymously and no identifiable information, such as name, contact information, address, etc. will be collected. All data will be stored at CSUSB campus in a password-protected desktop. Results of this study may be published but no names or identifying information will be used.

Right to Refuse:
Your participation is voluntary and you are free to withdraw from participation at any time

without suffering penalty. No compensation for participating will be provided at this time. Please notify the researchers if you experience distress during or after participation. If you have additional questions please contact Monideepa B. Becerra, DrPH, MPH mbecerra@csusb.edu (faculty researcher) at (909) 537-5969 or mbecerra@csusb.edu.

I have carefully read and/or I have had the terms used in this consent form and their significance explained to me. By checking the box below, I am choosing to participate in the study and I agree that I am at least 18 years of age and agree to participate in this project.

[ ] I agree to participate in this study.

APPENDIX E

INSTITUITIONAL REVIEW BOARD APPROVAL FORM

IRB-FY2019-120 - Initial: IRB Expedited Review Approval Letter

mgillesp@csusb.edu

Thu 1/24/2019 11:37 AM

To:Monideepa Becerra <mbecerra@csusb.edu>;

January 24, 2019

CSUSB INSTITUTIONAL REVIEW BOARD
Expedited Review
IRB-FY2019-120
Status: Approved

Prof. Monideepa Becerra
CNS - Health Science
California State University, San Bernardino
5500 University Parkway

San Bernardino, California 92407

Dear Prof. Monideepa Becerra:

Your application to use human subjects, titled "EMS support assessment" has been reviewed and approved by the Institutional Review Board (IRB). The informed consent document you submitted is the official version for your study and cannot be changed without prior IRB approval. A change in your informed consent (no matter how minor the change) requires resubmission of your protocol as amended using the IRB Cayuse system protocol change form.

Your application is approved for one year from January 24, 2019 through January 24, 2020.

Please note the Cayuse IRB system will notify you when your protocol is up for renewal and ensure you file it before your protocol study end date.

Your responsibilities as the researcher/investigator reporting to the IRB Committee include the following four requirements as mandated by the Code of Federal Regulations 45 CFR 46 listed below. Please note that the protocol change form and renewal form are located on the IRB website under the forms menu. Failure to notify the IRB of the above may result in disciplinary action. You are required to keep copies of the informed consent forms and data for at least three years.

You are required to notify the IRB of the following by submitting the appropriate form (modification, unanticipated/adverse event, renewal, study closure) through the online Cayuse IRB Submission System.

1. If you need to make any changes/modifications to your protocol submit a modification form as the IRB must review all changes before implementing in your study to ensure the degree of risk has not changed.
2. If any unanticipated adverse events are experienced by subjects during your research study or project.
3. If your study has not been completed submit a renewal to the IRB.
4. If you are no longer conducting the study or project submit a study closure.

Please ensure your CITI Human Subjects Training is kept up-to-date and current throughout the study.

The CSUSB IRB has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval notice does not replace any departmental or additional approvals which may be required. If you have any questions regarding the IRB decision, please contact Michael Gillespie, the IRB Compliance Officer. Mr. Michael Gillespie can be reached by phone at (909) 537-7588, by fax at (909) 537-7028, or by email at mgillesp@csusb.edu. Please include your application approval identification number (listed at the top) in all correspondence.

Best of luck with your research.

Sincerely,

Donna Garcia

Donna Garcia, Ph.D., IRB Chair
CSUSB Institutional Review Board

DG/MG

REFERENCES

Barrett, C. B. (2010). Measuring food insecurity. *Science*, *327*(5967), 825–828. https://doi.org/10.1126/science.1182768

Bharmal, N., & Chaudhry, S. (2012). Preventive health services delivery to South Asians in the United States. *Journal of Immigrant and Minority Health*, *14*(5), 797–802. https://doi.org/10.1007/s10903-012-9610-x

Bureau, U. S. C. (2018). American factfinder - results. Retrieved November 19, 2018, from https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_1YR_B19001D&prodType=table

Daga, S. S., & Raval, V. V. (2018). Ethnic–racial socialization, model minority experience, and psychological functioning among south Asian American emerging adults: A preliminary mixed-methods study. *Asian American Journal of Psychology*, *9*(1), 17–31. https://doi.org/10.1037/aap0000108

Gadgil, M. D., Anderson, C. A., Kandula, N. R., & Kanaya, A. M. (2015). Dietary patterns are associated with metabolic risk factors in South Asians living in the United States. *The Journal of Nutrition*, *145*(6), 1211–1217. https://doi.org/10.3945/jn.114.207753

Hastings, K. G., Jose, P. O., Kapphahn, K. I., Frank, A. T. H., Goldstein, B. A., Thompson, C. A., … Palaniappan, L. P. (2015). Leading causes of death among Asian American subgroups (2003–2011). *PLoS ONE*, *10*(4). https://doi.org/10.1371/journal.pone.0124341

Hirschman, C. (2014). Immigration to the United States: recent trends and future prospects. *Malaysian Journal of Economic Studies : Journal of the Malaysian Economic Association and the Faculty of Economics and Administration, University of Malaya*, *51*(1), 69–85.

Khan, O. (2018a). Health of South Asians in the United States: an evidence-based guide for policy and program development. https://doi.org/10.22454/FamMed.2018.284231

Musu-Gillette, L. (2017). *Status and Trends in the Education of Racial and Ethnic Groups 2017*. 180.

Passel, J. S. (2011). Demography of immigrant youth: past, present, and future. *The Future of Children*, *21*(1), 19–41.

Patel, M., Phillips-Caesar, E., & Boutin-Foster, C. (2012). Barriers to lifestyle behavioral change in migrant South Asian populations. *Journal of Immigrant and Minority Health / Center for Minority Public Health*, *14*(5), 774–785. https://doi.org/10.1007/s10903-011-9550-x

Resources and Fact Sheets | SAALT. (2017). Retrieved November 20, 2018, from http://saalt.org/resources/resources-factsheets/

Singh, G. K., & Siahpush, M. (2002). Ethnic-immigrant differentials in health behaviors, morbidity, and cause-specific mortality in the United States: an analysis of two national data bases. *Human Biology*, *74*(1), 83–109.

Tang, J. W. (2012). South Asian American perspectives on overweight, obesity, and the relationship between weight and health. *Preventing Chronic Disease*, *9*. https://doi.org/10.5888/pcd9.110284

USDA ERS - Definitions of food security. (2018). Retrieved November 20, 2018, from https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/definitions-of-food-security.aspx#CNSTAT

USDA ERS - Key Statistics & Graphics. (2018). Retrieved November 18, 2018, from https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/key-statistics-graphics/

USDA ERS - Survey Tools. (2019). Retrieved June 4, 2019, from https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/survey-tools/

Walsemann, K. M., Ro, A., & Gee, G. C. (2017). Trends in food insecurity among California residents from 2001 to 2011: Inequities at the intersection of immigration status and ethnicity. *Preventive Medicine*, *105*, 142–148. https://doi.org/10.1016/j.ypmed.2017.09.007